Access DB# 121080

RECEIVED
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(STIC)

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Richard Schnizer Examiner #: 76557 Date: 5/4/04
Art Unit: 1635 Phone Number ~~30~~ 20762 Serial Number: 09/786055
Mail Box and Bldg/Room Location: Rem 2C18 Results Format Preferred (circle): PAPER DISK E-MAIL
Rem 2C01 = OFC

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

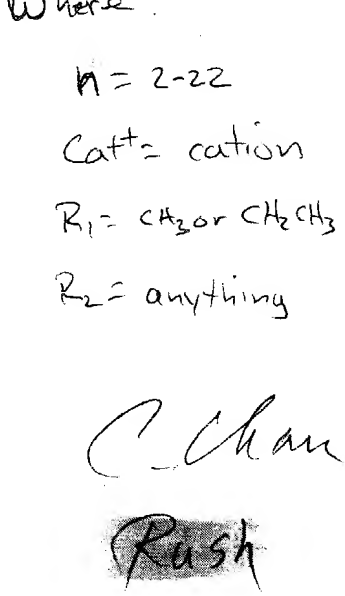
Title of Invention: PHOSPHOEPOXIDES

Inventors (please provide full names): Christian Belmant, Jean-Jacque Fournie, Marc Bonneville, Marie-Alix Peyrat

Earliest Priority Filing Date: 9/1/98

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

Please search the following structures



C. Cham

Rush

****

STAFF USE ONLY	Type of Search		Vendors and cost where applicable	
Searcher: D. Schreiber	NA Sequence (#)		STN	268.80
Searcher Phone #: 272-2526	AA Sequence (#)		Dialog	
Searcher Location: Remsen EO1 AG1	Structure (#)	1	Questel/Orbit	
Date Searcher Picked Up: 5/5	Bibliographic		Dr.Link	
Date Completed: 5/6	Litigation		Lexis/Nexis	
Searcher Prep & Review Time: 13	Fulltext		Sequence Systems	
Clerical Prep Time:	Patent Family		WWW/Internet	
Online Time: 61	Other		Other (specify)	

PTO-1590 (8-01)

STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 121080

TO: Richard Schnizer **Location: rem/2c01/2c18** **Art Unit: 1635** **Thursday, May 06, 2004** **Case Serial Number: 09/786055**	**From: David Schreiber** **Location: Biotech-Chem Library** **Remsen E01A61** **Phone: 272-2526** **david.schreiber@uspto.gov**

Search Notes

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=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 10:20:12 ON 06 MAY 2004
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)
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FILE COVERS 1907 - 6 May 2004  VOL 140 ISS 19
FILE LAST UPDATED: 5 May 2004  (20040505/ED)

 This file contains CAS Registry Numbers for easy and accurate
 substance identification.


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L2            96 SEA FILE=HCAPLUS FOURNIE J?/AU
L3           129 SEA FILE=HCAPLUS BONNEVILLE M?/AU
L4            80 SEA FILE=HCAPLUS PEYRAT M?/AU
L5           231 SEA FILE=HCAPLUS (L1 OR L2 OR L3 OR L4)
L8                STR
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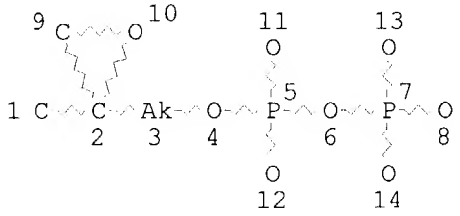


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DEFAULT ECLEVEL IS LIMITED
ECOUNT  IS M2-X22 C  AT   3

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NUMBER OF NODES IS  14

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L12           11 SEA FILE=HCAPLUS L11
L13            4 SEA FILE=HCAPLUS L12 AND L5


=> d ibib abs hitstr l13 1-4

L13  ANSWER 1 OF 4  HCAPLUS  COPYRIGHT 2004 ACS on STN
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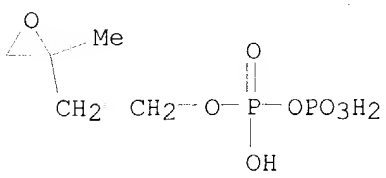
ACCESSION NUMBER: 2001:463707 HCAPLUS
DOCUMENT NUMBER: 135:207791
TITLE: Characterization of Phosphoantigens by High-Performance Anion-Exchange Chromatography-Electrospray Ionization Ion Trap Mass Spectrometry and Nanoelectrospray Ionization Ion Trap Mass Spectrometry
AUTHOR(S): Pont, Frederic; Luciani, Beatrice; **Belmant, Christian; Fournie, Jean Jacques**
CORPORATE SOURCE: Service de Spectrometrie de Masse de l'IFR 30, CHU Purpan, Toulouse, 31024, Fr.
SOURCE: Analytical Chemistry (2001), 73(15), 3562-3569
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB New phosphorylated microbial metabolites referred to as phosphoantigens activate immune responses in humans. Although these mols. have leading applications in medical research, no direct method allows their rapid and unambiguous structural identification. Here, we interfaced online high performance anion-exchange chromatog. (HPAEC) with electrospray ionization ion trap mass spectrometry (ESI-ITMS) to identify such pyrophosphorylated mols. A self-regenerating anion suppressor located upstream of electrospray ionization enabled the simultaneous detection of pyrophosphoester by conductimetry, UV and MS. By HPAEC-ITMS and HPAEC-ITMS2, a single run permitted characterization of reference phosphoantigens and of related structures. Although all compds. were resolved by HPAEC, MS enabled their detection and identification by [M - H]- and fragment ions. Isobaric phosphoantigen analogs were also separated by HPAEC and distinguished by MS2. The relevance of this device was demonstrated for phosphoantigens anal. in human urine and plasma. Furthermore, identification of natural phosphoantigens by automatically generated 2D mass spectra from nano-ESI-ITMS is presented. This last technique permits the simultaneous performance of mol. screening of natural phosphoantigen exts. and their identification.

IT **115914-67-5**
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(characterization of phosphoantigens by anion-exchange HPLC-electrospray ionization ion trap mass spectrometry and nanoelectrospray ionization ion trap mass spectrometry)

RN 115914-67-5 HCAPLUS
CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 21 THERE ARE 21 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L13 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:119873 HCAPLUS
DOCUMENT NUMBER: 137:92275
TITLE: A chemical basis for selective recognition of

nonpeptide antigens by human δ T cells. [Erratum to document cited in CA133:320819]

AUTHOR(S): **Belmant, Christian**; Espinosa, Eric; Halary, Franck; Tang, Yong; **Peyrat, Marie-Alix**; Sicard, Helene; Kozikowski, Aalan; Buelow, Roland; Poupot, Remy; **Bonneville, Marc**; **Fournie, Jean-Jacques**

CORPORATE SOURCE: INSERM U395, CHU Purpan, Toulouse, 31024, Fr.

SOURCE: FASEB Journal (2000), 14(13), 2128
CODEN: FAJOEC; ISSN: 0892-6638
URL: http://www.fasebj.org/cgi/doi/10.1096/fj.99-0909fje

PUBLISHER: Federation of American Societies for Experimental Biology

DOCUMENT TYPE: Journal

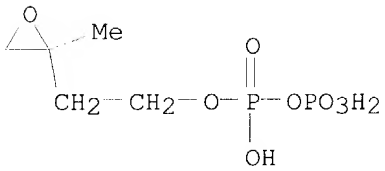
LANGUAGE: English

AB The correct URL link (web address) is http://www.fasebj.org/cgi/doi/10.1096/fj.99-0909fje.

IT **115914-67-5**
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(structure-function anal. of T-cell recognition of (Erratum))

RN 115914-67-5 HCAPLUS

CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



L13 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2000:655984 HCAPLUS

DOCUMENT NUMBER: 133:320819

TITLE: A chemical basis for selective recognition of nonpeptide antigens by human δ T cells

AUTHOR(S): **Belmant, Christian**; Espinosa, Eric; Halary, Franck; Tang, Yong; **Peyrat, Marie-Alix**; Sicard, Helene; Kozikowski, Alan; Buelow, Roland; Poupot, Remy; **Bonneville, Marc**; **Fournie, Jean-Jacques**

CORPORATE SOURCE: INSERM U395, CHU Purpan, Toulouse, 31024, Fr.

SOURCE: FASEB Journal (2000), 14(12), 1669-1670
CODEN: FAJOEC; ISSN: 0892-6638

PUBLISHER: Federation of American Societies for Experimental Biology

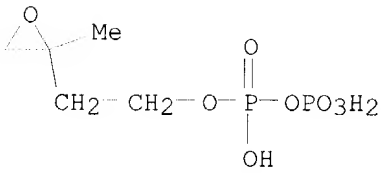
DOCUMENT TYPE: Journal

LANGUAGE: English

AB Human γδ T lymphocytes activate their immune function upon TCR-mediated recognition of antigens not associated with MHC mols. Because different non-peptide phosphorylated antigens (phosphoantigens) are selectively recognized by γδ T cells, the authors clarified its mol. basis through the structure-function relation of novel synthetic phosphoantigens.

Search completed by David Schreiber x22526

IT **115914-67-5**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(structure-function anal. of T-cell recognition of)
RN 115914-67-5 HCAPLUS
CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



L13 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:161295 HCAPLUS
DOCUMENT NUMBER: 132:194500
TITLE: Preparation of phosphoepoxides and their application in activating Tγ9δ2 lymphocytes of primates
INVENTOR(S): **Belmant, Christian; Fournie, Jean-jacques; Bonneville, Marc; Peyrat, Marie-alix**
PATENT ASSIGNEE(S): Institut National De La Sante Et De La Recherche Medicale, Fr.
SOURCE: PCT Int. Appl., 52 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000012519	A1	20000309	WO 1999-FR2057	19990827
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
FR 2782722	A1	20000303	FR 1998-10914	19980901
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CA 2341578	AA	20000309	CA 1999-2341578	19990827
AU 9954265	A1	20000321	AU 1999-54265	19990827
EP 1109818	A1	20010627	EP 1999-940246	19990827
EP 1109818	B1	20021106		
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JP 2002523515	T2	20020730	JP 2000-567540	19990827
AT 227296	E	20021115	AT 1999-940246	19990827
PT 1109818	T	20030228	PT 1999-940246	19990827

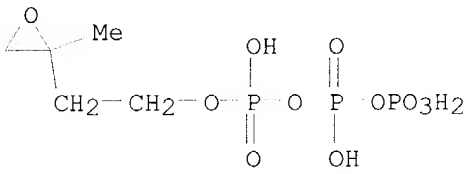
Search completed by David Schreiber x22526

ES 2187184 T3 20030516 ES 1999-940246 19990827
PRIORITY APPLN. INFO.: FR 1998-10914 A 19980901
WO 1999-FR2057 W 19990827
OTHER SOURCE(S): CASREACT 132:194500

AB The invention concerns compds. comprising at least a phosphoepoxide group of formula R1C(CH2O)(CH2)nOP(O)(O-Cat+)OP(O)(O-Cat+)O- (R1 = Me, Et; Cat+ = organic or mineral cation; n = 2-20). The invention also concerns their preparation methods and applications, particularly in therapy and for activating Tγ9δ2 lymphocytes of primates. For example, the Na salt of 3,4-epoxy-3-methylbutyl diphosphate was prepared in 4 steps: (1) preparation of 3-methyl-3-butenyl tosylate from tosyl chloride and isopentenol; (2) preparation of the ammonium salt of 3-methyl-3-butenyl diphosphate from tris(tetrabutylammonium) hydrogen pyrophosphate and 3-methyl-3-butenyl tosylate; (3) the bromination of the 3-methyl-3-butenyl diphosphate by bromine water; and (4) cyclization in aqueous ammonia.

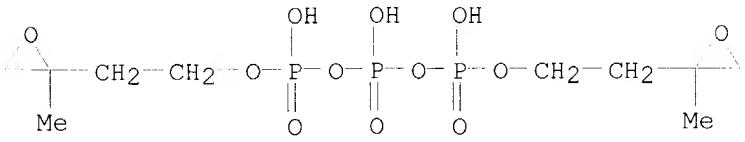
IT **259793-68-5P**, 3,4-Epoxy-3-methylbutyl tetrasodium triphosphate
259793-69-6P, α,γ-Bis(3,4-epoxy-3-methylbutyl) trisodium triphosphate **259793-70-9P**, γ-(3,4-Epoxy-3-methylbutyl) trisodium uridine-5'-triphosphate
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); IMF (Industrial manufacture); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation and activation of Tγ9δ2 lymphocytes by)

RN 259793-68-5 HCAPLUS
CN Triphosphoric acid, P-[2-(2-methyloxiranyl)ethyl] ester, tetrasodium salt (9CI) (CA INDEX NAME)



●4 Na

RN 259793-69-6 HCAPLUS
CN Triphosphoric acid, P,P''-bis[2-(2-methyloxiranyl)ethyl] ester, trisodium salt (9CI) (CA INDEX NAME)



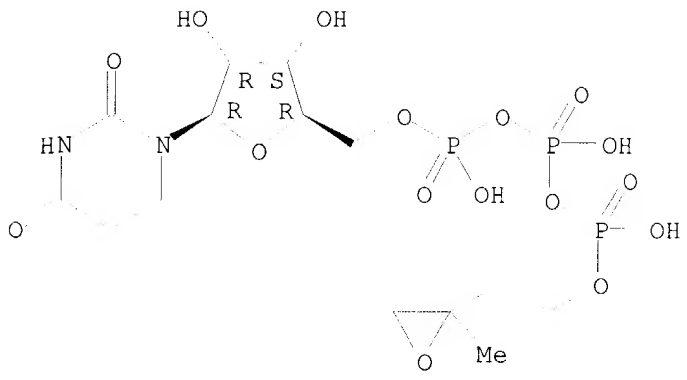
●3 Na

RN 259793-70-9 HCAPLUS
CN Uridine 5'-(tetrahydrogen triphosphate), P''-[2-(2-methyloxiranyl)ethyl]

Search completed by David Schreiber x22526

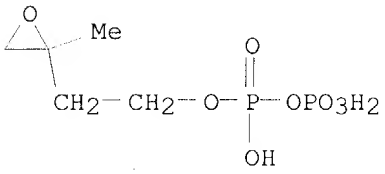
ester, trisodium salt (9CI) (CA INDEX NAME)

Absolute stereochemistry.



●3 Na

IT **259793-67-4P**, 3,4-Epoxy-3-methylbutyl trisodium diphosphate
RL: ADV (Adverse effect, including toxicity); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); IMF (Industrial manufacture); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation, toxicity and activation of Tγ9δ2 lymphocytes by)
RN 259793-67-4 HCAPLUS
CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester, trisodium salt (9CI) (CA INDEX NAME)



●3 Na

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L3           129 SEA FILE=HCAPLUS BONNEVILLE M?/AU
L4            80 SEA FILE=HCAPLUS PEYRAT M?/AU
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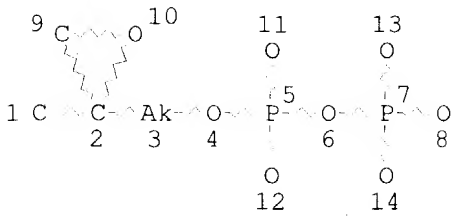

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NUMBER OF NODES IS 14

STEREO ATTRIBUTES: NONE
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L12 11 SEA FILE=HCAPLUS L11
L13 4 SEA FILE=HCAPLUS L12 AND L5
L14 7 SEA FILE=HCAPLUS L12 NOT L13

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L14 ANSWER 1 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2004:55097 HCAPLUS
DOCUMENT NUMBER: 140:231385
TITLE: Crystal structure of the C67A mutant of isopentenyl diphosphate isomerase complexed with a mechanism-based irreversible inhibitor
AUTHOR(S): Wouters, J.; Oudjama, Y.; Stalon, V.; Droogmans, L.; Poulter, C. D.
CORPORATE SOURCE: Institut de Recherches Microbiologiques J.M. Wiame, Brussels, Belg.
SOURCE: Proteins: Structure, Function, and Bioinformatics (2003), Volume Date 2004, 54(2), 216-221
CODEN: PSFBAF
PUBLISHER: Wiley-Liss, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Isopentenyl diphosphate isomerase (I) is a key enzyme in the biosynthesis of isoprenoids. The mechanism of the isomerization reaction involves protonation of the unactivated C:C bond in the substrate. Anal. of the 1.97 Å crystal structure of the inactive C67A mutant of Escherichia coli I complexed with the mechanism-based inactivator, 3,4-epoxy-3-methyl-1-Bu diphosphate, was in agreement with an isomerization mechanism involving Glu-116, Tyr-104, and Cys-67. In particular, the results were consistent with a mechanism for I where Glu-116 is involved in the protonation step and Cys-67 in the elimination step.

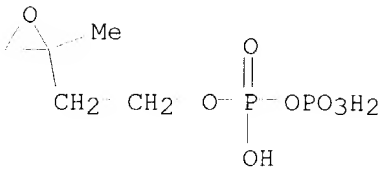
IT **115914-67-5D**, complexes with isopentenyl diphosphate isomerase C67A mutant
RL: BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); BIOL

Search completed by David Schreiber x22526

(Biological study); PROC (Process)
(crystal structure of Escherichia coli isopentenyl diphosphate isomerase C67A mutant complexed with a mechanism-based irreversible inhibitor)

RN 115914-67-5 HCAPLUS

CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 2 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:678965 HCAPLUS
DOCUMENT NUMBER: 139:196245
TITLE: Methods for producing γδ T-cells
INVENTOR(S): Romagne, Francois; Laplace, Catherine
PATENT ASSIGNEE(S): Innate Pharma, Fr.
SOURCE: PCT Int. Appl., 55 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003070921	A1	20030828	WO 2003-FR585	20030221
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FR 2836483	A1	20030829	FR 2002-2305	20020222

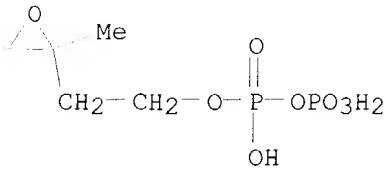
PRIORITY APPLN. INFO.: FR 2002-2305 A 20020222

AB The invention discloses methods for producing lymphocytic cells, as well as tools, reagents, and kits useful for implementing same. More particularly, the invention discloses methods for preparing γδ T cells, adapted to industrial production of functional cells of pharmaceutical quality in large amts. The invention also concerns methods for activating γδ T cells, devices adapted to the methods, as well as the resulting cell compns. and their human or animal γδ T cells, and can be used in pharmaceutics, therapeutics, expts., cosmetics, industrial research among others.

IT **115914-67-5 586354-83-8 586354-84-9**

RL: BUU (Biological use, unclassified); BIOL (Biological study); USES (Uses)
(methods for producing γδ T-cells)

RN 115914-67-5 HCAPLUS
CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



RN 586354-83-8 HCAPLUS
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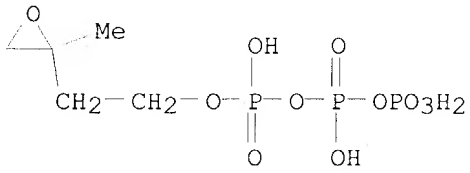

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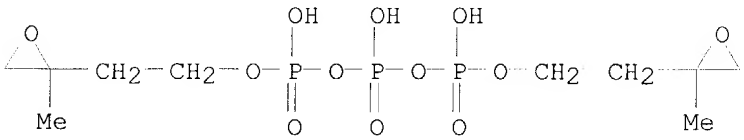
CN Triphosphoric acid, P,P''-bis[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 3 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2003:247400 HCAPLUS
DOCUMENT NUMBER: 139:145735
TITLE: Catalytic mechanism of Escherichia coli isopentenyl diphosphate isomerase involves Cys-67, Glu-116, and Tyr-104 as suggested by crystal structures of complexes with transition state analogues and irreversible inhibitors
AUTHOR(S): Wouters, J.; Oudjama, Y.; Barkley, Sam J.; Tricot, C.; Stalon, V.; Droogmans, L.; Poulter, C. Dale
CORPORATE SOURCE: Institut de Recherches Microbiologiques J.M. Wiame, Brussels, 1070, Belg.
SOURCE: Journal of Biological Chemistry (2003), 278(14), 11903-11908
CODEN: JBCHA3; ISSN: 0021-9258

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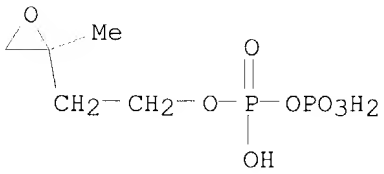
PUBLISHER: American Society for Biochemistry and Molecular Biology
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Isopentenyl diphosphate (IPP)-dimethylallyl diphosphate isomerase (I) is a key enzyme in the biosynthesis of isoprenoids. The reaction involves protonation and deprotonation of the isoprenoid unit and proceeds through a carbocationic transition state. Here, anal. of crystal structures (2 Å) of complexes of E. coli I with a transition state analog, N,N-dimethyl-2-amino-1-Et diphosphate (NIPP), and with a covalently attached irreversible inhibitor, 3,4-epoxy-3-methyl-1-Bu diphosphate (EIPP), indicated that Glu-116, Tyr-104, and Cys-67 are involved in the antarafacial addition/elimination of protons during isomerization. In NIPP, the pos. charged ammonium group mimics the putative carbocation formed by protonation of the double bond in IPP; the inhibitor forms a stable noncovalent complex with I. EIPP is an irreversible inhibitor that forms a covalent bond to Cys-139 in yeast I. Anal. of the crystal structures of complexes between those transition state analogs and E. coli I provides evidence for the involvement of Cys-67 and Glu-116 and suggests that Tyr-104 may also be part of the catalytic machinery. This work provides a new perspective on the reaction mechanism.

IT **115914-67-5D**, complexes with isopentenyl diphosphate isomerase
RL: BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); BIOL (Biological study); PROC (Process)
(crystal structure of Escherichia coli isopentenyl diphosphate isomerase complexed with ligands)

RN 115914-67-5 HCAPLUS

CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 4 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2002:710130 HCAPLUS
DOCUMENT NUMBER: 137:261824
TITLE: Quantitative Structure-Activity Relations for γδ T Cell Activation by Phosphoantigens
AUTHOR(S): Gossman, William; Oldfield, Eric
CORPORATE SOURCE: Department of Chemistry, University of Illinois at Urbana-Champaign, Urbana, IL, 61801, USA
SOURCE: Journal of Medicinal Chemistry (2002), 45(22), 4868-4874
CODEN: JMCMAR; ISSN: 0022-2623
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB γδ T cells help contribute to innate immunity and are activated by the natural phosphoantigens produced by the organisms

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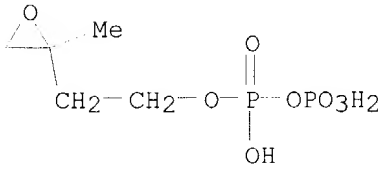
responsible for causing, for example, tuberculosis, malaria, tularemia, and plague. They are also activated by synthetic phosphoantigens and are cytotoxic to tumor cells. Here, we show that it is now possible to accurately predict γδ T cell activation by both natural and synthetic phosphoantigens by using the quant. structure-activity relationship (QSAR) techniques commonly used in drug design. This approach should be of use in developing novel immunotherapeutic agents as well as contributing to a better understanding of the immune system's response to infectious agents.

IT **115914-67-5**
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(quant. structure-activity relations for γδ T cell activation by phosphoantigens)

RN 115914-67-5 HCAPLUS

CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L14 ANSWER 5 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 1993:539564 HCAPLUS

DOCUMENT NUMBER: 119:139564

TITLE: Biosynthesis of Archaebacterial lipids in Halobacterium halobium and Methanobacterium thermoautotrophicum

AUTHOR(S): Zhang, Donglu; Poulter, C. Dale

CORPORATE SOURCE: Dep. Chem., Univ. Utah, Salt Lake City, UT, 84112, USA

SOURCE: Journal of Organic Chemistry (1993), 58(15), 3919-22
CODEN: JOCEAH; ISSN: 0022-3263

DOCUMENT TYPE: Journal

LANGUAGE: English

GI

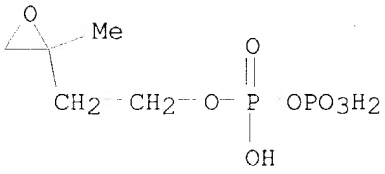
AB The core membrane lipids in archaebacteria are isoprenoid ether derivs., e.g. I, of glycerol instead of fatty acid esters found in other organisms. Activities for three key enzymes in membrane lipid biosynthesis, isopentenyl diphosphate (IPP) isomerase, geranylgeranyl diphosphate (GGPP)

synthase, and 3-O-geranylgeranylglyceryl phosphate (GGGP) synthase were found in the cytosolic fractions of cell-free homogenates from the strict anaerobe Methanobacterium thermoautotrophicum and the extreme halophile Halobacterium halobium. The substrate selectivities of GGGP synthase from both sources were similar and indicate a common pathway for biosynthesis of the isoprenoid compds. in core membrane lipids from methanogenic and halophilic archaebacteria.

IT **115914-67-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and inhibition by, of isopentenyl diphosphate isomerase)

RN 115914-67-5 HCAPLUS

CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



L14 ANSWER 6 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN

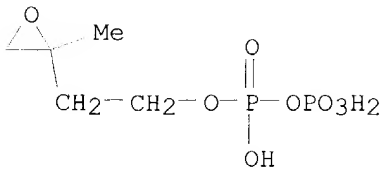
ACCESSION NUMBER: 1992:587103 HCAPLUS
DOCUMENT NUMBER: 117:187103
TITLE: Isopentenyl-diphosphate isomerase: irreversible inhibition by 3-methyl-3,4-epoxybutyl diphosphate
AUTHOR(S): Lu, Xiang J.; Christensen, Dale J.; Poulter, C. Dale
CORPORATE SOURCE: Dep. Chem., Univ. Utah, Salt Lake City, UT, 84112, USA
SOURCE: Biochemistry (1992), 31(41), 9955-60
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Isopentenyl diphosphate isomerase (EC 5.3.3.2) (I) catalyzes the 1,3-allylic rearrangement of the homoallylic substrate, isopentenyl diphosphate, to its allylic isomer, dimethylallyl diphosphate. The incubation of yeast I with 3-methyl-3,4-epoxybutyl diphosphate (II) resulted in a time-dependent 1st-order loss of activity characteristics of an active-site-directed irreversible process, where k2 = 0.63 min-1 and Ki = 0.37 μM. A 1:1 covalent enzyme-inhibitor (E-I) complex was formed upon incubation with [1-14C]II. Inhibited I was treated with trypsin to give 2 radioactive fragments, which were purified by reversed-phase HPLC on a C18 column. The modified amino acid in each fragment was identified as Cys-139 by sequencing the radiolabeled peptides. The incubation of I with [2,4,5-13C3]II gave a 13C-labeled E-I complex. A 1H-13C heteronuclear multiquantum correlation spectrum had strong cross-peaks at 1.2/28 and 2.9/48 ppm, which were assigned to the labeled Me group and C4 methylene group, resp., of II. In addition, a weak signal at 2.17/42 ppm may be from the C2 methylene group. A comparison of these chemical shifts with those of a synthetic adduct isolated from treatment of II with cysteine indicated that Cys-139 attacks the C4 atom of II to generate a thioether linkage between the enzyme and the inhibitor.

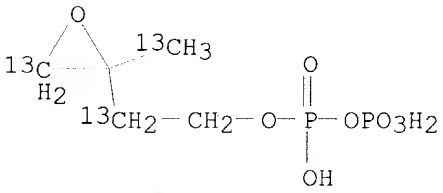
IT **115914-67-5**
RL: BIOL (Biological study)
(isopentenyl diphosphate isomerase inhibition by, mechanism of, active site cysteine-139 modification in relation to)

RN 115914-67-5 HCAPLUS

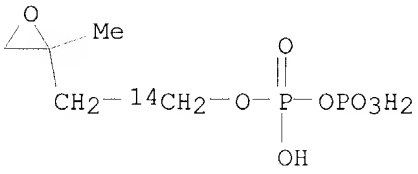
CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



IT **143445-82-3P 143445-84-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and isopentenyl diphosphate isomerase inhibition by)
RN 143445-82-3 HCAPLUS
CN Diphosphoric acid, mono[2-[2-(methyl-13C)oxiranyl-3-13C]ethyl-2-13C] ester (9CI) (CA INDEX NAME)



RN 143445-84-5 HCAPLUS
CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl-1-14C] ester (9CI) (CA INDEX NAME)



L14 ANSWER 7 OF 7 HCAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1988:524850 HCAPLUS
DOCUMENT NUMBER: 109:124850
TITLE: Isopentenyl-diphosphate isomerase: inactivation of the enzyme with active-site-directed irreversible inhibitors and transition state analogs
AUTHOR(S): Muehlbacher, Manfred; Poulter, C. Dale
CORPORATE SOURCE: Dep. Chem., Univ. Utah, Salt Lake City, UT, 84112, USA
SOURCE: Biochemistry (1988), 27(19), 7315-28
CODEN: BICHAW; ISSN: 0006-2960
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Seven analogs of isopentenyl diphosphate and dimethylallyl diphosphate containing F, epoxy, and ammonium functional groups irreversibly inhibited isopentenyl diphosphate isomerase (EC 5.3.3.2) from Claviceps purpurea. Inactivation kinetics, substrate protection studies, and labeling expts.

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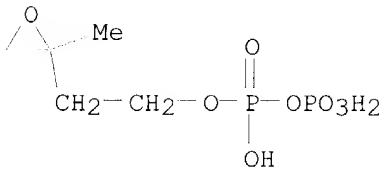
demonstrated that the analogs interacted stoichiometrically with the active site of the enzyme. Radioactive enzyme-inactivator complexes were stable to extended dialysis and treatment with chaotropic reagents. The complexes resulting from inactivation of isomerase by 3-(fluoromethyl)-3-buten-1-yl diphosphate (I) and 3,4-epoxy-3-methyl-1-Bu diphosphate were also stable to ion-exchange chromatog. and gel electrophoresis. Stoichiometric release of F- occurred during inactivation of isomerase with I. This observation was consistent with SN2 or SN2' displacement of F by an active-site nucleophile with concomitant covalent attachment of the inactivator to the enzyme. 2-(Dimethylamino)ethyl diphosphate (II) formed a stable noncovalent complex with isomerase with a dissociation constant of < 1.2 + 10-10M. The enzyme-inhibitor complex was stable in 6M urea, but the inhibitor was partially released upon treatment with SDS and 2-mercaptoethanol at 37° for 1 h. The results indicated that II is a transition-state/reactive intermediate analog where the pos. charged ammonium group mimics a tertiary carbocationic species in the enzyme-catalyzed reaction.

IT **115914-82-4P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and isopentenyl diphosphate isomerase of Claviceps purpurea inactivation by)
RN 115914-82-4 HCAPLUS
CN Diphosphoric acid, labeled with phosphorus-32, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)



IT **115914-67-5P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and kinetics of isopentenyl diphosphate isomerase of Claviceps purpurea inactivation by)
RN 115914-67-5 HCAPLUS
CN Diphosphoric acid, mono[2-(2-methyloxiranyl)ethyl] ester (9CI) (CA INDEX NAME)